

BALLAST WATER MANAGEMENT PLAN CONTENTS

California's Ballast Water Management and Control law requires that the master, owner, operator, or person in charge of a vessel maintain a ballast water management plan that was prepared specifically for the vessel (Public Resources Code Section 71203(b)).

The California State Lands Commission understands that many vessels are in the process of developing said plans. The following information, is intended to guide the development of your vessel specific Ballast Water Management Plan. Included below is (I) General Plan Contents, which is a simply a short list of information that a plan should contain; and (II) and a more detailed Sample Ballast Water Management Plan.

Please note that the format presented here is one example of a Vessel Specific Ballast Water Management Plan. The exact contents and format of a vessel's individual plan may vary from our SAMPLE PLAN. If you have any questions or comments about this sample plan please contact Maurya Falkner, Program Manager, at 562-499-6312.

I. GENERAL PLAN CONTENTS

The Ballast Water Management Plan should be designed to minimize the transfer of aquatic nuisance species and be specific for each ship.

The plan should have, address, or contain the following information, at a minimum:

1. International, Federal and State Regulations
2. Discussion of how this particular vessel will comply with the California Law.
3. Schematics of the vessels ballast water system, including if possible the location of sample collection points.
4. Indicate the location, if any, of informational placards related to ballast water management
5. Information on the training program that addresses:
 - Ballast water management practices
 - Operation of treatment technology and equipment
 - Identifies personnel who should receive training
 - Verifies that personnel are trained
 - Indicates refresher training for personnel
6. A copy of the IMO Ballast Water Guidelines (Resolution A.868(20))
7. Copies of ballast water records/reports (vessels must maintain ballast water report forms for 2 years)

II. SAMPLE Ballast Water Management Plan

1 INTRODUCTION

Harmful aquatic organism invasions through ballast water are recognized as a serious threat to global biological diversity and human health. Studies carried out in several countries have shown that many species of bacteria, plants, and animals can survive in a viable form in the ballast water and sediment carried in ships, even after journeys of several months' duration. Subsequent discharge of ballast water or sediment into the waters of port states may result in the establishment of these harmful organisms creating a detriment to the marine environment. The International Maritime Organization (IMO), as well as several port state authorities, has recognized the potential harm created by the transportation of non-indigenous species through ballast water. In November 1997, the IMO issued voluntary guidelines, addressing ballast water management, which it recommended all maritime nations adopt.

The objectives of this plan are to minimize the introduction of harmful aquatic organisms and pathogens from the ship's ballast water and associated sediments while protecting the ship's safety. Through the use of prescribed ballast water management practices, standard operating procedures, and training, these objectives can be safely met.

2 PRACTICES AND PROCEDURES

Every ship that carries ballast water should have on board and maintain a written, ship specific, ballast water management plan. The plan should incorporate practices and procedures that meet the requirements of port state authorities, maritime organizations, and company policies (as appropriate) to minimize the transfer of these harmful organisms. The master, operator, or person in charge of a vessel has ultimate responsibility for ensuring the safety and stability of the vessel and the safety of the crew and passengers. While developing and implementing these procedures, due consideration must be given to these responsibilities.

- ✦ The master, operator, or person in charge shall not conduct any ballast water management practice if the master determines the practice would threaten the safety of the vessel, its crew, or its passengers because of adverse weather, vessel design limitations, equipment failure, or any other extraordinary conditions. If a determination is made, all feasible measures that do not compromise the safety of the vessel should be taken.

2.1 Ballast water management options

Subject to the above paragraph, the master, operator, or person in charge shall employ at least one of the following procedures for ballast water carried into the waters of a port state from outside the Exclusive Economic Zone (EEZ) of that port state. This area normally encompasses the waters contained within 200nm from the base of the territorial seas.

- 2.1.1 Exchange ballast water outside the EEZ, from an area not less than 200nm any shore, and in waters greater than 2,000 meters deep, prior to entry into the waters of the port state.

****This is the recommended practice, giving the ship the flexibility to discharge any combination of tanks, should stability and trim requirements change.****

- 2.1.2 Retain the ballast water on board the vessel

- 2.1.3 Discharge ballast water and sediment to an approved reception facility. Currently there are no “approved” facilities or guidelines as to the approval process. In the event this becomes necessary, ship’s masters should work through their Agents and P&I Reps to coordinate any additional requirements set forth by the port state authorities. .

****This is the least recommended practice, due to expense and time.****

- 2.1.4 Use an alternative, environmentally sound, method of ballast water management. If suitable new and emergent technologies become available, these may replace current options. These methods are designed to “treat” the water, effectively eliminating the organisms. Such treatments could include thermal methods, filtration, chemical treatment, and ultraviolet light. Alternative methods used must be pre-approved by the port state authorities.

- 2.1.5 Under extraordinary circumstances, an exchange may be conducted within an area agreed to by the port state authorities at the time of request. Requests should be written and detail circumstances preventing normal mid-ocean exchanges. The request should also provide operational information such as, dates, times, locations, depths, etc.

2.2 Precautionary practices

The master, owner, operator, or person in charge shall ensure the following practices are carried out to minimize the uptake and release of non-indigenous species.

- 2.2.1 Avoid uptake and discharge of water in areas that may directly affect marine sanctuaries, marine preserves, marine parks, or coral reefs
- 2.2.2 Minimize or avoid uptake of ballast water in all of the following areas and circumstances:
 - ⌘ Areas known to have infestations or populations of harmful organisms and pathogens
 - ⌘ Areas near sewage outfalls, dredging operations, poor tidal flushing characteristics, or where propellers may stir up sediment
 - ⌘ In darkness when bottom-dwelling organisms may rise up in the water column
- 2.2.3 Clean ballast tanks on a regular basis to remove sediments. This can be accomplished in mid-ocean waters, at dry-dock, or other controlled arrangements in port. Ensure sediments are disposed of properly, in accordance with any port state requirements.
- 2.2.4 Take additional good housekeeping measures to minimize the risk, such as:
 - ⌘ Rinse anchors and anchor chain when retrieving to remove organisms and sediment at their place of origin
 - ⌘ Remove fouling organisms from hull, piping and tanks on a regular basis
 - ⌘ Discharge only the minimum amount of ballast water essential for vessel operations

3 RECORDS AND REPORTING PROCEDURES

3.1 Records

- 3.1.1 Good record keeping is critical to the success of a solid ballast water management program. Compliance can be verified and managed more effectively if accurate records are maintained and stored in an organized manner. To facilitate the administration of ballast water management on board each ship, a responsible officer should be appointed to manage and certify appropriate records. This person would most likely be directly responsible for trim and stability management and oversee any ballasting operation (such as the Chief Mate or Master).
- 3.1.2 Ships records should be accessible and readily available for review by port state authorities. In the event the master is ashore, for instance, the senior officer on watch should have access to these records to minimize any problems with compliance inspections.

- 3.1.3 A ballast water log should be established to capture the origin and disposition of waters taken or discharged from ballast tanks. At a minimum, the dates, geographical locations, ship's tank(s) and cargo holds, ballast water temperature and salinity, as well as amount of ballast water taken or discharged should be recorded. A sample form can be found in Appendix 2 – Forms and Checklists.
- 3.1.4 Other records which should be maintained include:
- ✦ Any permits, certificates, exemptions, waivers, or compliance reports issued by port state authorities.
 - ✦ Records of training and qualification received by the ship's crew
 - ✦ Correspondence related to unusual circumstances or incidents where ballast water management practices could not be diligently carried out
 - ✦ Precautionary practices and preventative maintenance evolutions undertaken
 - ✦ Reports of condition, issued by Class Societies, shipyards, or repair facilities (in respect to ballast systems).

3.2 Reporting Procedures

- 3.2.1 Many port states have issued ballast water control guidelines and many others are currently developing programs. Shipping organizations and ship's managers should be familiar with current requirements and stay abreast of new and developing programs. Ships should work with managers and agents to ensure any necessary port state requirements are met prior to arrival.
- 3.2.2 Port states that have issued ballast water guidelines require ships provide information in regards to its ballast water. Specifically, the origin of and the vessel's intent to discharge ballast water may be of primary concern. Each port the vessel may call in should be listed with all pertinent information provided. This should include what information is required, any forms or permits are required and point of contact information.
- 3.2.3 Areas listed below are to be regarded as sensitive areas and have issued guidelines on ballast water control. Instructions for forms and contact information can be found in appendix 2 and 7 respectively.
- 3.2.3.1 United States, California waters - Mandatory reporting program
- ✦ U. S. Coast Guard Forms developed pursuant to National Invasive Species Act of 1996
 - ✦ Submitted prior to departure of first California port
 - ✦ Form must be submitted regardless of ballasting operations
 - ✦ Applies to "Qualifying Voyages" as defined in §71200 of the Public Resources Code

3.2.3.2 United States, St Lawrence Seaway and Great Lakes – Mandatory reporting program

- ✦ U. S. Coast Guard Forms developed pursuant to National Invasive Species Act of 1996
- ✦ Requirements outlined in 33 CFR 151

3.2.3.3 United States, all coastal waters – Voluntary reporting program

- ✦ U. S. Coast Guard Forms developed pursuant to National Invasive Species Act of 1996
- ✦ Requirements outlined in 33 CFR 151

4 BALLAST SYSTEM DESIGN AND DESCRIPTION

The following section should be used to describe the basic ballast water system, including number of tanks, types of tanks, capacities, and pumping and piping details

5 TRAINING AND QUALIFICATION

As with any pollution prevention program, training is the cornerstone of any successful program. Training for ships masters and crew should include instructions on the application of ballast water management principles and procedures. Instruction should also be provided on the maintenance of appropriate records and logs. A brief syllabus should be included in this section, as well as the frequency of such training. The training program should address the different levels of training required for varying positions and responsibilities as appropriate.

6 APPENDIXES

APP 1 – Safety Aspects of Ballast Water Exchange at Sea

APP 2 – Forms and Checklists

APP 3 – Definitions

APP 4 – Ballast System Diagrams

APP 5 – Port State Requirements Cross Reference Table

APP 6 – IMO Guidelines

APP 7 – List of Contacts

APP 8 – Compendium of Port State Laws and Regulations

APPENDIX 1 – Guidance on safety aspects of ballast water exchange at sea (excerpted from *IMO Ballast Water Guidelines (RES. A.868 (20))*)

1. Introduction

- 1.1 This document is intended to provide guidance on the safety aspects of ballast water exchange at sea. The different types of ships which may be required to undertake ballast water exchange at sea make it presently impractical to provide specific guidelines for each ship type. Shipowners are cautioned that they should consider the many variables that apply to their ships. Some of these variables include type and size of ship, ballast tank configurations and associated pumping systems, trading routes and associated weather conditions, port state requirements and manning.
- 1.2 Ballast water exchange at sea procedures contained in relevant management plans should be individually assessed for their effectiveness from the environmental protection point of view as well as from the point of view of their acceptability in terms of structural strength and stability.
- 1.3 In the absence of a more scientifically based means of control, exchange of ballast water in deep ocean areas or opens seas currently offers a means of limiting the probability that fresh water or coastal aquatic species will be transferred in ballast water. Two methods of carrying out ballast water exchange at sea have been identified;
 - .1 The sequential method, in which ballast tanks are pumped out and refilled with clean water; and/or
 - .2 The flow-through method, in which ballast tanks are simultaneously filled and discharged by pumping in clean water

2. Safety precautions

- 2.1 Ships engaged in ballast water exchange at sea should be provided with procedures which account for the following, as applicable:
 - .1 avoidance of over- and under-pressurization of ballast tanks;
 - .2 free surface effects on stability and sloshing loads in tanks that may be slack at any one time;
 - .3 admissible weather conditions;
 - .4 weather routing in areas seasonably affected by cyclones, typhoons, hurricanes, or heavy icing conditions;
 - .5 maintenance of adequate intact stability in accordance with an approved trim and stability booklet;
 - .6 permissible seagoing strength limits of shear forces and bending moments in accordance with an approved loading manual;
 - .7 torsional forces, where relevant;
 - .8 minimum/maximum forward and aft draughts;
 - .9 wave-induced Hull vibrations;
 - .10 documented records of ballasting and/or deballasting;
 - .11 contingency procedures for situations which may affect the ballast water exchange at sea, including deteriorating weather conditions, pump failure, loss of power, etc.;
 - .12 time to complete the ballast water exchange or an appropriate sequence thereof, taking into account that the ballast water may represents 50% of the total cargo capacity for some ships; and
 - .13 monitoring and controlling the amount of ballast water.

- 2.2 If the flow-through method is used, caution should be exercised, since:
 - .1 air pipes are not designed for continuous ballast water overflow;
 - .2 current research indicates that pumping of at least three full volumes of the tanks capacity could be needed to be effective when filling clean water from the bottom and overflowing from the top; and
 - .3 certain watertight and weather-tight closures (e.g. manholes) which may be opened during ballast exchange, should be re-secured.
- 2.3 Ballast water exchange at sea should be avoided in freezing weather conditions. However, when it is deemed absolutely necessary, particular attention should be paid to the hazards associated with the freezing of overboard discharge arrangements, air pipes, ballast system valves together with their means of control, and accretions of ice on deck.
- 2.4 Some ships may need the fitting of loading instrument to perform calculations of shear forces and bending moments induced by ballast water exchange at sea and to compare with the permissible strength limits.
- 2.5 An evaluation should be made of the safety margins for stability and strength contained in allowable seagoing conditions specified in the approved trim and stability booklet and the loading manual, relevant to individual types of ships and loading conditions. In this regard particular account should be taken of the following requirements;
 - .1 stability to be maintained at all times to values not less than those recommended by the Organization (or required by the Administration);
 - .2 longitudinal stress values not to exceed those permitted by the ship's classification society with regard to prevailing sea conditions; and
 - .3 exchange of ballast in tanks or holds where significant structural loads may be generated by sloshing action in the partially filled tank or hold to be carried out in favorable sea and swell conditions so that the risk of structural damage is minimized.
- 2.6 The ballast water management plan should include a list of circumstances in which ballast water exchange should not be undertaken. These circumstances may result from critical situations of an exceptional nature, force majeure due to stress of weather, or any other circumstances in which human life or safety of the ship is threatened

3. Crew training and familiarization

- 3.1 The ballast water management plan should include the nomination of key shipboard control personnel undertaking ballast water exchange at sea
- 3.2 Ships' officers and ratings engaged in ballast water exchange at sea should be trained in and familiarized with the following:
 - .1 the ship's pumping plan, which should show ballast pumping arrangements, with positions of associated air and sounding pipes, positions of all compartments and tank suction and pipelines connecting them to ship's ballast pumps and, in the case of use of the flow-through method of ballast water exchange, the openings used for release of water from the top of the tank together with overboard discharge arrangements;
 - .2 the method of ensuring that sounding pipes are clear, and that air pipes and their non-return devices are in good order;
 - .3 the different times required to undertake the various ballast water exchange operations;
 - .4 the methods in use for ballast water exchange at sea if applicable with particular reference to required safety precautions; and
 - .5 the method of on-board ballast water record keeping, reporting and recording of routine soundings.

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APPENDIX 2 – Forms and Checklists

Ballast water report forms
Procedural checklists
Ballast log format, etc

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APPENDIX 3 – Definitions

Recommend definitions from 33 CFR 151, §71200 of the Public Resource Code, IMO guidelines, and any other pertinent definitions

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APPENDIX 4 – Ballast System Diagrams

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APPENDIX 5 – Port State Requirements Cross Index

Requirement	California	USA, Great Lakes	USA, All Coastal	Other
Record keeping	Yes			
Reporting	Yes			
Exchange	Yes *			
Management plan	Yes			
Record retention	2 years			
Training	Yes			

* Mandatory if ballast water is to be discharged in waters of the State.

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APPENDIX 6 – IMO Guidelines for the control and management of ships'
ballast water
(Copy should be inserted here)

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APPENDIX 7 – List of Contacts

California

California State Lands Commission

Marine Facilities Division

330 Golden Shore, Ste. 200

Long Beach, CA 90802

Fax: 1-562-499-6444

Email: bwforms@slc.ca.gov

www.slc.ca.gov

United States – Great Lakes

United States – All Coastal

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APPENDIX 8 – Compendium of Port State Laws and Regulations
Assembly Bill 703 – California state law “Ballast Water Management for Control of
Nonindigenous Species
33 CFR 151 –
Other such legislation